

**PRODUCT CHANGE NOTICE**  
**PCN Form (D4-E000-73)**

**PCN#11-017**

**NOTIFICATION DATE: November 17, 2011**

**MODEL(S) AFFECTED:**

**YSF Series** (see specific models below)

**YSF-122+, YSF-162+, YSF-2151+, YSF-232+, YSF-272+, YSF-322+ & YSF-382+**

**EXTENT OF CHANGE:**

- Change of device footprint (No change to existing overall dimensions)

<b>From</b>	<b>To</b>
Case Style DL1020	Case Style DL1636

**EFFECT OF CHANGE:**

- No change in function.
- Ground paddle dimension increased per attached drawings.
- No impact on assembly. Footprint is reverse compatible with previous layout

**REASON FOR CHANGE:**

Changes made to enable improvements in manufacturing throughput.

**EFFECTIVE DATE OF CHANGE:**

Immediate

**DELIVERY:**

N/A

**ATTACHMENTS:**

Report on footprint compatibility

**QUESTIONS?**

**PLEASE CONTACT US.**

**ISO 9001 CERTIFIED**

## PRODUCT CHANGE NOTICE

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Attachment to [PCN#11-017](#)

### YSF Model Series Footprint Compatibility Original vs New

#### Overview

YSF series MSiP (Mini-Circuits System In Package) amplifiers are housed in 5 x 6 MCLP package (*Mini-Circuits leadless Package*). The case style is updated with enhanced ground paddle resulting in a change:

From: Case Style DL1020

To: Case Style DL1636

Resulting changes are reflected in the model's outline drawing, corresponding PCB Layouts and Evaluation Boards. This report is an assessment of compatibility of both case styles with either PCB Layout.

#### Revision Matrix

Reference	Description	Case Style No.	PCB Layout	Eval. Board	T & R
Original case	5 x 6 mm MCLP plastic package with smaller ground paddle (figure 1)	DL1020 (Figure 3)	PL-335 (Figure 5)	TB-589-1+ TB-589-2+ TB-589-3+ TB-589-4+ TB-589-5+ TB-589-6+ TB-589-7+	F68
New Case	5 x 6 mm MCLP plastic package with bigger ground paddle (figure 2)	DL1636 (Figure 4)	PL-352 (Figure 6)	TB-616-1+ TB-616-2+ TB-616-3+ TB-616-4+ TB-616-5+ TB-616-6+ TB-616-7+	F68

#### Conclusion

Both case styles and PCB Layouts are compatible and interchangeable.

Reference	Case Style No.	Original PCB Layout PL-335	New PCB Layout PL-352
Original case	DL1020	<i>ref.</i>	Compatible
New Case	DL1636	Compatible	<i>ref.</i>

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### Detailed Description

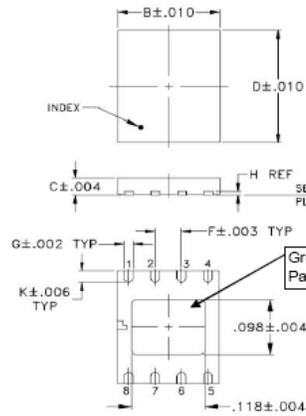
#### OUTLINE DRAWINGS

### Case Style

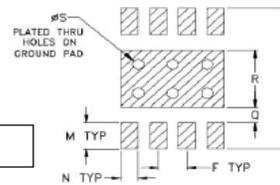
### DL

DL1020

#### Outline Dimensions



#### PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N
DL1020	--	.193 (4.90)	.035 (0.90)	.236 (6.00)	--	.050 (1.27)	.017 (0.42)	.008 (0.20)	--	.024 (0.60)	--	.050 (1.27)	.030 (0.76)

CASE #	P	Q	R	S	T	WT. GRAM
DL1020	.270 (6.86)	.030 (0.76)	.110 (2.79)	.020 (0.51)	--	.08

Dimensions are in inches (mm). Tolerances: 2 Pl. ±.01; 3Pl. ±.004

#### Notes:

1. Case material: Plastic.
2. Termination finish:  
For RoHS Case Styles: Tin-Silver-Nickel plate. All models, (+) suffix.  
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

**Figure 1 - Existing Outline Drawing (DL1020)**

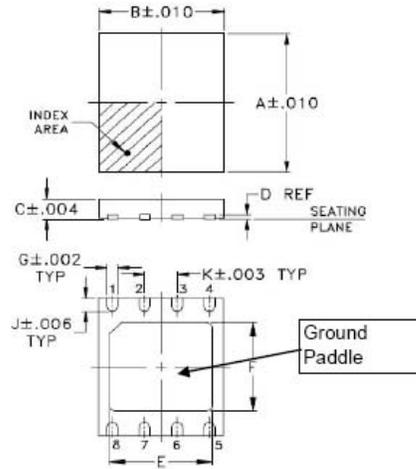
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**Case Style**

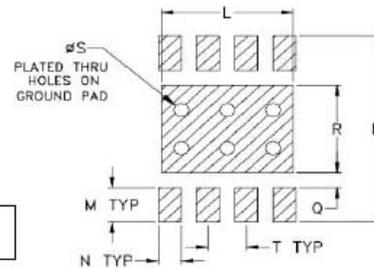
**DL**

DL1636

**Outline Dimensions**



**PCB Land Pattern**



Suggested Layout,  
Tolerance to be within  $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M	N
DL1636	.236 (6.00)	.193 (4.90)	.035 (0.90)	.008 (0.20)	.160 (4.05)	.153 (3.89)	.017 (0.42)	--	.024 (0.60)	.050 (1.27)	.162 (4.11)	.040 (1.02)	.020 (0.51)

CASE #	P	Q	R	S	T	WT. GRAM
DL1636	.257 (6.53)	.011 (0.28)	.155 (3.94)	.020 (0.51)	.050 (1.27)	.08

Dimensions are in inches (mm). Tolerances: 3Pl.  $\pm .004$ , unless otherwise specified.

**Notes:**

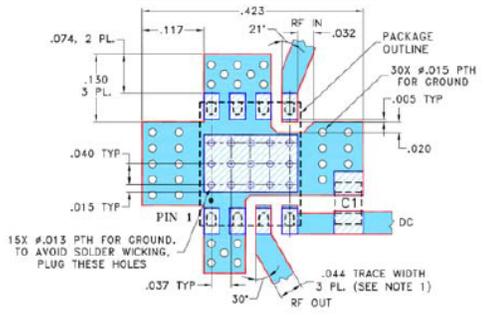
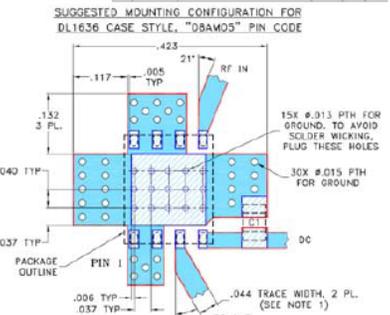
1. Case material: Plastic.
2. Termination finish:  
For RoHS Case Styles: Tin-Silver-Nickel plate. All models, (+) suffix.  
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

**Figure 2 - New Outline Drawing (DL1636)**

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## PCN Form (D4-E000-73)

### PCB Layouts Existing vs. Proposed

CASE STYLE: DL1020 (Original Case Style)	CASE STYLE: DL1636 (New Case Style)
 <p style="text-align: center;">Figure 3 - Photo of YSF amplifiers in Case Style DL1020 (Smaller ground paddle)</p>	 <p style="text-align: center;">Figure 4 - Photo of YSF amplifiers in Case Style DL1636 (Larger ground paddle)</p>
 <p style="text-align: center;">CAPACITOR C1: 1000pF, 0805 SIZE</p> <p style="text-align: center;">NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.</p> <p style="text-align: center;">Figure 5 - PL-335 PL Drawing for Original Case Style</p>	 <p style="text-align: center;">SUGGESTED MOUNTING CONFIGURATION FOR DL1636 CASE STYLE, "08A05" PIN CODE</p> <p style="text-align: center;">NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. 2. FOOTPRINT FOR 0805 CHIP CAPACITOR IS SHOWN FOR REFERENCE. 3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.</p> <p style="text-align: center;">Figure 6 - PL-352 PL Drawing for New Case Style</p>

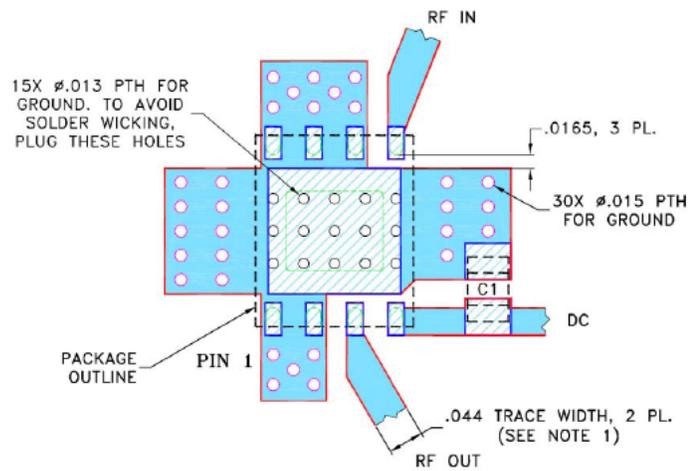
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### Evaluation

The compatibility of the new case style (DL1636) to the existing PCB layout (PL-335) and of the existing case (DL1020) to the new PCB Layout (PL-352) was assessed in accordance with IPC requirements.

**CONCLUSION:** Both combinations (old case on new PCB Layout – and - new case on old PCB Layout) are compliant with IPC requirements



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $.020" \pm .0015"$ . COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
 2. FOOTPRINT FOR 0805 CHIP CAPACITOR IS SHOWN FOR REFERENCE.  
 3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

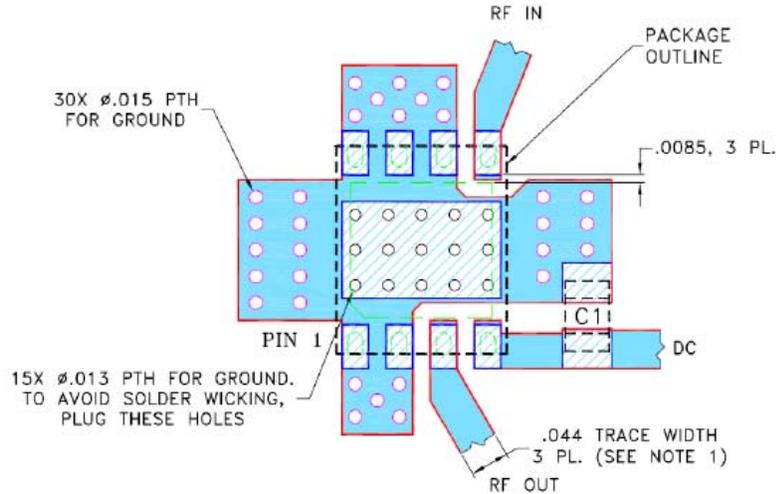
Note: Dimensions are in inches

Color	Description
Black-dashed	Outline of YSF Package, existing case style DL1020
Green-dashed	Outline of copper underneath YSF unit
	Solder mask on bare copper (SMOBC)
	Copper Pattern free of solder mask
Blue-Solid	Copper opening border on PCB
Black solid circles	Plated Thru Holes to ground

**Figure 7 - Assessment of Original Case Style unit mounted on New PCB Land Pattern**

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CAPACITOR C1: 1000pF, 0805 SIZE

- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $.020" \pm .0015"$ . COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
 2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

Note: Dimensions are in inches

Color	Description
Black-dashed	Outline of YSF Package, new case style DL1636
Green-dashed	Outline of copper underneath YSF unit
	Solder mask on bare copper (SMOBC)
	Copper Pattern free of solder mask
Blue-Solid	Copper opening border on PCB
Black solid circles	Plated Thru Holes to ground

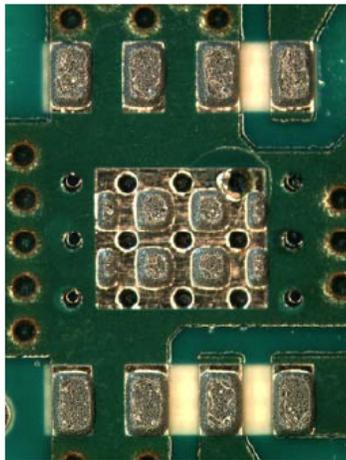
**Figure 8 - Assessment of New Case Style unit mounted on Original PCB Land Pattern**

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### Experiments

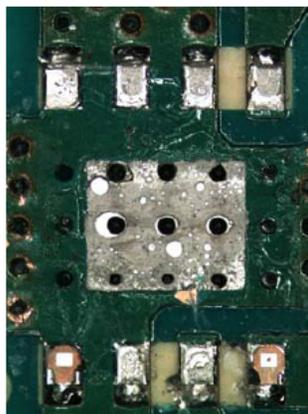
1. New case style YSF units (DL1636) were reflowed onto a PCB with original PCB Layout (PL-335).
2. Reflow conditions were: 245°C peak temperature,
3. Units were additional 4 times. (see flow chart in Figures 12)
4. Units passed Electrical test (DC) after reflow
5. On forcible removal of a unit from PC board, no evidence of bridging between pads was observed, see figure 11.



**Figure 9:** After Screen Printing of Solder Paste



**Figure 10:** After Pick & Place



**Figure 11:** PCB pad after prying the reflowed unit from the board  
(No evidence of shorts)

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